

March 23, 1989

Dr. Robert Hamilton  
Raven Services Corporation  
2200 Sixth Avenue, Suite 519  
Seattle, WA 98104

Dear Bob:

This letter authorizes Raven to perform work authorization 89-6, "1989 Quarterly Monitoring of the Georgetown Flume". Enclosed are the scope of work and budget. The total budget allowed is \$5,256 to be billed as actual time and expenses. Of this total, \$1,960 is for the MBE subcontractor work and \$800 is for the WBE subcontractor work.

Thank you for your assistance to City Light.

Sincerely,

(Sgd.) LYNN BEST  
Lynn Best, Acting Director  
Environmental Affairs Division

RT:bal

Enclosure

cc: Laurie Geissinger  
Roger Taylor  
Cheryl Tenney  
EAD 773.01  
File

SCL 04224

CTY0049230

SEA289709

## WORK ORDER 89-6

### QUARTERLY MONITORING OF THE GEORGETOWN FLUME

#### I. SCOPE OF WORK

Until the eventual closure and filling in of the Georgetown flume, Raven will conduct quarterly sampling of the flume for PCB content in sediments. Samples are as described below.

#### II. SAMPLES

Samples of flume sediments will include a composite of two subsamples at the flume head, one sample at the head of the double pipes, a composite of four each above and below the tide gate, and a composite of two subsamples taken on either side of the Myrtle St. Bridge. The locations should be near the sample locations taken in Work Order 87-5. In addition, fragments of the wood floorboards of the flume shall be sampled in two locations, including the head of the flume. Samples of the wood walls of the flume are not currently requested although Raven may choose to sample these as well if they find basis for concern.

Temperature measurements of the water in the flume head and at the exit of the double pipe portion of the flume, in addition to ambient air temperature, shall also be recorded.

#### III. SAMPLING METHODOLOGY AND REPORT

##### A. Methodology

1. Collection, storage, processing, and analysis of samples will be according to current USEPA Standards. PCB analysis will follow the Method 8080 (EPA document SW-846, 1982).
2. Sampling equipment will be decontaminated between each sample. Solvent rinse will be collected.
3. Appropriate protective gear will be used to ensure safety for the sampling crew.
4. After all analyses are completed, any remaining sample materials, if they constitute a hazardous material, may be returned to City Light for appropriate disposal.
5. Drawings will be provided on which the location of samples will be marked.
6. Sample chain-of-custody procedures will be used when requested.

## B. Report

This report will include:

1. Description of the conditions and date(s) of sample collection, including times samples are taken and tide level information correlating to the time of sampling.
2. Documentation of preparation of sampling equipment and containers to avoid sample contamination.
3. Description of containers, procedures, reagents, etc., used for sample collection, preservation, transport, and storage.
4. Field sampling procedures.
5. Sample preservation methods and holding time.
6. Sample chain-of-custody procedures when required.
7. Documentation of methods for sampling, processing, and analysis (including any changes from the test procedures in Method 8080 in method, apparatus, reagents, calibration, quality control, extraction, separation, gas chromatography, or calculations).
8. Laboratory results expressed on a dry-weight basis and identifying PCB composition or Arochlor species, including a brief description of the sample material (e.g., concrete, soil, grave, etc.).
9. Documentation of each sampling site.
10. An interpretation of the data along with conclusions and recommendations.

## IV. SCHEDULE

Sample collection	-	Due Date
Draft report to EAD	-	Day 0
Draft report to EAD	-	Day 21
Final report to EAD	-	one week after review of draft by EAD

V. BUDGET

Quarterly Costs:

Startup \$ 90.00

Field:

Raven Project Manager - 5 @\$47/hour 235.00

Office:

Project Manager - 4 @ \$45/hour 180.00

WBE Assistance - 5 @ \$40/hour 200.00

Raven 15 percent WBE Carrying Cost 30.00

Other Costs:

MBE PCB Analysis - 7 @\$70/each 490.00

Raven 15 percent Carrying Cost 52.50

Sample Jars 10.00

Chemicals and supplies 19.00

Van Travel - 30 miles @ .25/mi. 7.50

QUARTERLY BUDGET: 1,314.00

TOTAL BUDGET (quarterly x 4) 5,256.00